

## CLAIMS

What is claimed is:

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1. A pilot authentication system comprising:

a processor located in an aircraft and connected to an avionics computer of the aircraft;

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a plurality of sensors connected to the processor and located proximal to the pilot;  
and

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a transceiver connected to the processor,

wherein the processor monitors the plurality of sensors and the avionics computer, determines whether an alert condition is present, and sends an alert signal over the transceiver in response to the alert condition.

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2. The system of claim 1, further comprising:

a base station;

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a second transceiver connected to the base station; and

an alarm system connected to the base station,

5            wherein the second transceiver receives the alert signal, the base station processes the alert signal, and the base station activates the alarm system in response to the alert signal.

10           3.        The system of claim 1, wherein the alert condition is triggered by an unauthorized pilot controlling the aircraft.

             4.        The system of claim 1, wherein the alert condition is triggered by physical distress experienced by the pilot.

15           5.        The system of claim 1, wherein the alert condition is triggered by the aircraft flying unattended.

             6.        The system of claim 1, wherein the plurality of sensors includes at least one  
20        fingerprint sensor.

             7.        The system of claim 6, wherein the at least one fingerprint sensor scans at least one fingerprint of an individual controlling the aircraft.

8. The system of claim 7, wherein the at least one fingerprint is compared to a database of authorized fingerprints to determine if the pilot is authorized to control the aircraft, said database being located in the processor.

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9. The system of claim 8, wherein the database of authorized fingerprints can be remotely updated to selectively add and delete digitized fingerprints of individuals authorized to control the aircraft.

10 10. The system of claim 1, wherein the plurality of sensors includes at least one biometric sensor.

11. The system of claim 10, wherein the at least one biometric sensor monitors the heart rate of the pilot.

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12. The system of claim 10, wherein the at least one biometric sensor monitors the body temperature of the pilot.

13. The system of claim 1, wherein the processor contains a threshold value  
20 corresponding to a maximum time period for which the controls of the aircraft can be left unattended.

14. The system of claim 2, wherein the base station further comprises a master database of digitized fingerprints of individuals authorized to control at least one aircraft.

15. The system of claim 14, wherein the master database can be updated to selectively  
5 add or delete digitized fingerprints of additional individuals authorized to control at least one aircraft.

16. The system of claim 15, wherein the processor can be updated with records from the master database.

17. A method of authenticating a pilot comprising:

providing a fingerprint database of individuals authorized to control an aircraft;

15 scanning at least one fingerprint of the pilot at the controls of the aircraft;

comparing the at least one fingerprint to the database of individuals authorized to control the aircraft; and

20 in response to a negative comparison,

generating an alert signal in a processor in the aircraft; and

transmitting the alert signal from the aircraft to a ground-based monitoring system.

18. The method of claim 17 further comprising:

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receiving the alert signal at the ground-based monitoring system;

processing the alert signal; and

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activating an alert system in response to the alert signal.

19. The method of claim 17 further comprising:

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receiving the alert signal at the ground-based monitoring system;

extracting at least one fingerprint of the pilot from the alert signal;

storing the at least one fingerprint in a storage means at the ground-based system;

20 and

alerting law enforcement authorities.